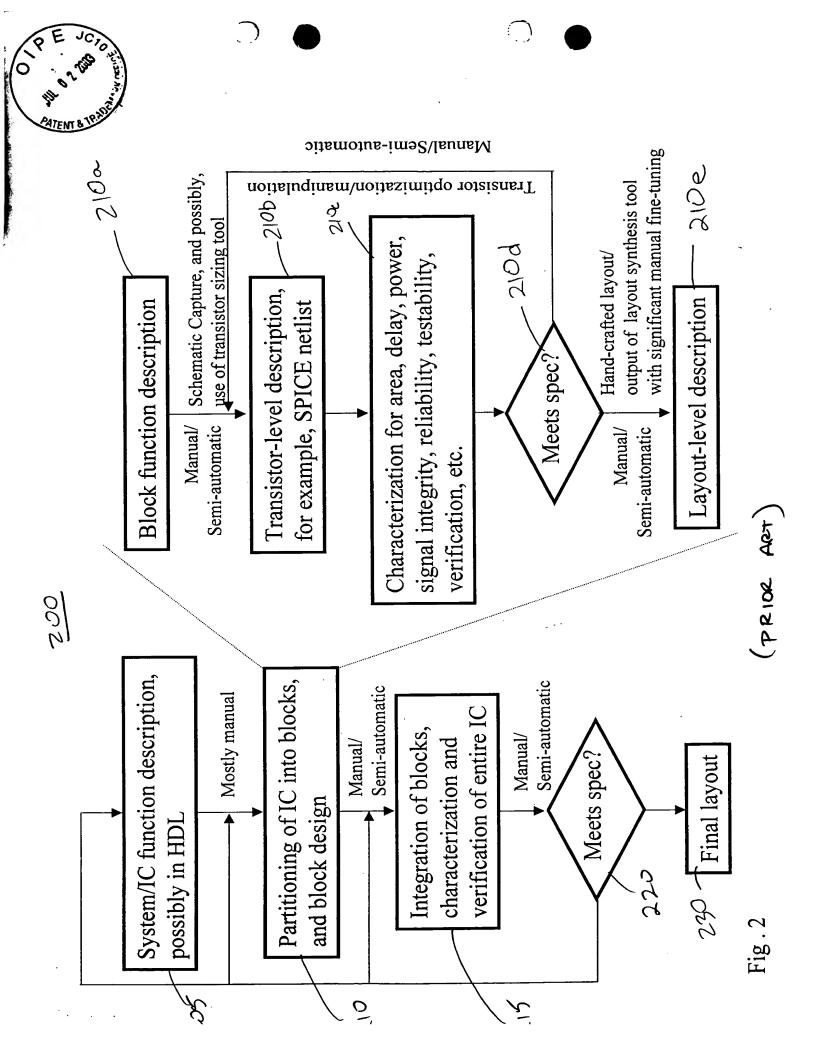
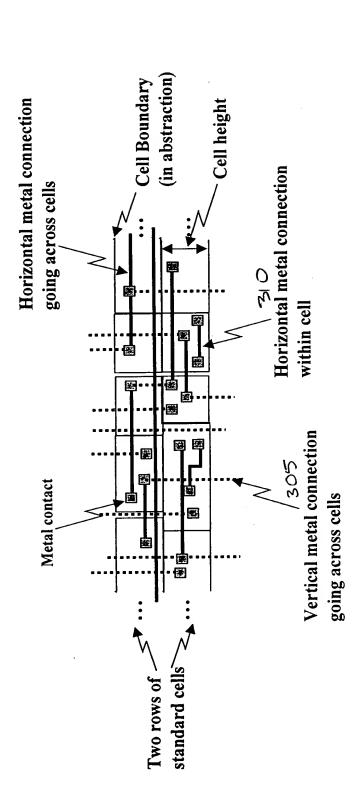


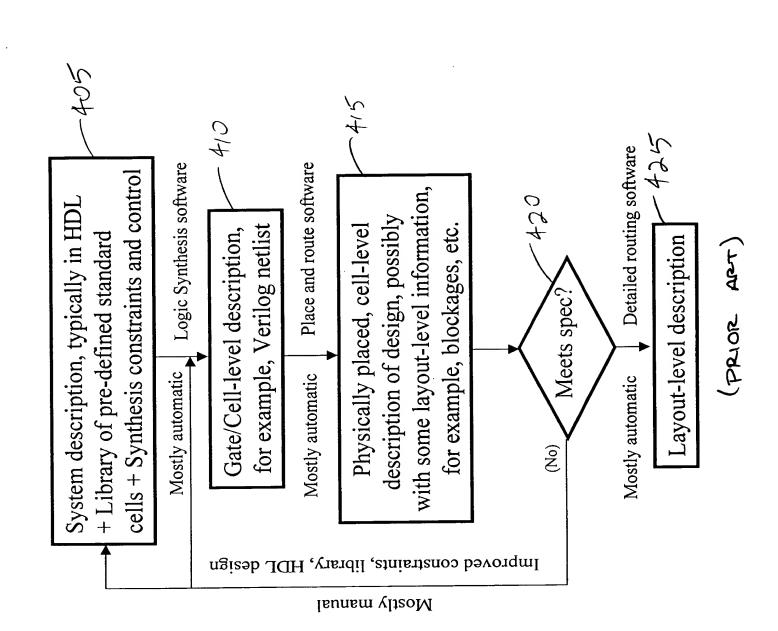
Fig.







Snapshot of a portion of typical modern standard-cell based design, depicting two rows of starndard cells, and over-the-cell routing of actual orientation of "horizontal" and "vertical" is design-specific. interconnects, assuming 3 layers of metal connection;



Improved constraints, enhanced library, extracted info 505 Mostly manual Mostly automatic L Global place and route software 225 Detailed routing software 535 515, Mostly automatic | Logic Synthesis software description of design (including cells + Synthesis constraints and control (S) System description, typically in HDL for example, Verilog netlist Gate/Cell-level description, Placed and detailed routed Placed and globally routed clock-tree synthesis, etc.) + Library of pre-defined standard description of design Meets spec? Meets spec? Meets spec? Mostly automatic (SQ) (S) Layout-level description Better constraints Mostly manual Improved constraints, library, HDL design Mostly manual PRIOR ART

PATENT & PRINTS

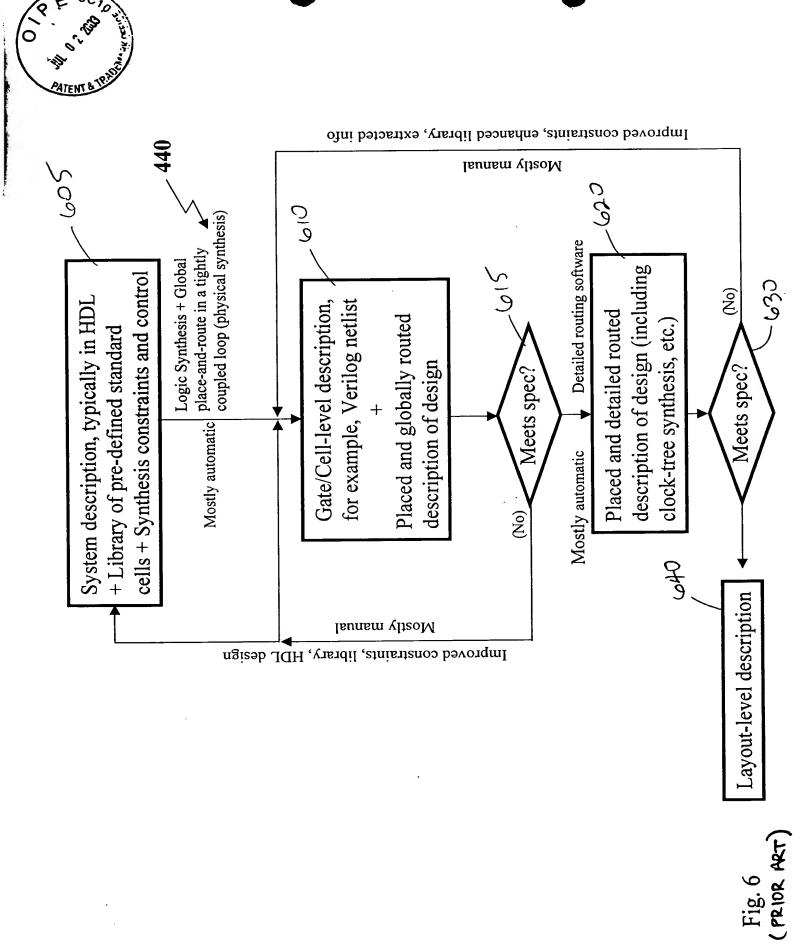


Fig. 6